ICS 91.140.90
CCS Q78

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 10059-2023

Replacing GB/T 10059-2009

Testing methods for electric lifts

电梯试验方法

Issued on: November 27, 2023 **Implemented on: June 1, 2024**

Issued by: State Administration for Market Regulation;
Standardization Administration of China

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1 Scope

GB/T 10059-2023 is the Chinese national standard on testing methods for electric lifts, in the field of construction materials and building. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 27 November 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2024. Classification: ICS 91.140.90, CCS Q78. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the testing methods for the whole machine and components of passenger and goods lifts. This document applies to traction lifts with a rated speed not exceeding

6.0 m/s and forced lifts with a rated speed not exceeding

0.63 m/s. For traction lifts with a rated speed exceeding

6.0 m/s, this document shall be used as a reference. The inapplicable parts shall be determined by the manufacturer and the buyer through consultation. This document does not apply to hydraulic lifts, dumbwaiter lifts, home lifts, goods- only lifts, and inclined lifts.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 7024, Terminology of lifts, escalators, passenger conveyors

GB/T 7588.1-2020, Safety rules for the construction and installation of lifts - Part 1: Passenger and goods passenger lifts

GB/T 7588.2-2020, Safety rules for the construction and installation of lifts - Part 2: Design rules, calculations, examinations and tests of lift components

GB/T 10058-2023, Specification for electric lifts

GB/T 10060, Code for installation acceptance of electric lifts

GB/T 24474.1-2020, Measurement of ride quality - Part 1: Lifts (elevators)

GB/T 24478, Traction machine of electric lifts

GB/T 24480, Landing doors fire resistance test - Methods for leakage rate, thermal insulation and radiation

GB/T 27903, Fire resistance test for lift landing doors - Methods of measuring integrity, thermal insulation and heat flux restriction device; measure the width of the car door opening at the door opening restriction device. Stop the car within the distance specified in

GB/T 7588.1-2020; open the corresponding floor door; check whether the car door can be opened from the landing without tools. If a tool is required, check whether it is a triangular key or a tool permanently installed on site. For lifts that comply with 5.2.5.3.1c) of

GB/T 7588.1-2020, stop the lift outside the unlocking area and check whether the car door can be opened from inside the car.

5.1.5.4 Prevention of normal operation of the lift when the door contact circuit fails During the normal operation of the lift, respectively simulate the faults of the electrical safety device for checking the closed position of the car door, the electrical safety device for checking the locking position of the landing door locking device and the independent monitoring signal that confirms that the car door is in the closed position, and check the lift to see whether it can operate normally after the car stops at the landing, the car door is opened and the landing door locks are released.

5.1.6 Car upward overspeed protective device

5.1.6.1 The unloaded car moves upward at a speed not less than the rated speed, activating the speed monitoring component to trigger the deceleration component to operate. At the same time, cut off the power supply to the motor. Decelerate the car by using the car upward overspeed protective device only, and measure the car deceleration. Example: The deceleration component is a wire rope brake acting on the suspension wire rope. Stop the no-load car at the bottom terminal; cut off the power supply of the traction motor; manually open the traction machine brake. When the car is accelerating upward, measure the motion speed of the lift car using the speed testing instrument. When the lift speed reaches the rated speed, manually activate the speed monitoring component to trigger the wire rope brake (the traction machine brake is always in the open state) to slow down the car; measure the deceleration of the car.

5.1.6.2 When the electrical safety device of the car upward overspeed protective device is activated, check whether the lift can start or continue to run.

5.1.7 Emergency operation

5.1.7.1 Manual emergency operation device If it is a manually operated mechanical device, measure the operating force required to move the car to the nearby landing, and check its location, type and markings. For detachable manually operated mechanical devices, check whether there is an electrical safety device that complies with

GB/T 7588.1-2020 and works at the latest when the device is connected to the drive host.

5.1.9.4 When there are multiple maintenance operation control devices, switch all the maintenance operation control devices to the "maintenance" state, operate each maintenance operation control device separately and operate the same button on all the maintenance operation control devices at the same time to check whether the lift can be maintained and operated.

5.1.10 Emergency alarm device and voice broadcast system Check the set location and marking of the emergency alarm device. Cut off the main power supply and lighting power supply, and check whether the emergency alarm device is working effectively. Perform continuous communication between the emergency alarm device and the rescue services. Respectively simulate the lift to trap people due to power outage and malfunction, car position correction (except re-leveling), activation of automatic rescue operation device (if any), and exit from normal service due to fire signal, and check whether the voice broadcast system is working effectively.

5.1.11 Electromechanical brakes

5.1.11.1 When the car is loaded with 125% of the rated load and is moving downward at the rated speed, operate the brake and measure the braking deceleration of the car.

5.1.11.2 Disable each set of mechanical components in the brake separately; operate the remaining mechanical components of the brake; measure the braking deceleration of the car. Carry out the test under the following conditions:

a) The car is unloaded and runs upward at rated speed;

b) The car is loaded with rated load and moves downward at rated speed. Before each test, the brake components shall be restored to their normal temperature. In addition, it shall be checked whether each set of brake mechanical components can be tested independently from outside the well.

5.1.11.3 Check whether the brake status is monitored and the monitoring method. Where the braking force of each set of brakes is monitored, manually cancel and/or trigger this function (for example, adjusting the monitoring cycle, or entering a certain test program) respectively, while simulating the brake to be in a state of insufficient braking force, to check whether the lift can be put into normal operation. Where the action of the brake mechanical